



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0405

Project: 15-0405, 35th Avenue Site - Reported by Denise Goddard

**September 29, 2015**

**MEMORANDUM**

**SUBJECT:** FINAL Analytical Report  
Project: 15-0405, 35th Avenue Site  
Superfund Remedial

**FROM:** Denise Goddard  
Office of Quality Assurance Chemist

**THRU:** Ray Terhune, Acting Chief  
Office of Quality Assurance

**TO:** Richard Jardine

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the associated contract Statement Of Work (SOW). In general, project data quality objectives have not been used to evaluate these data prior to release by the Office of Quality Assurance. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report.

Analyses Included in this report:

Method Used:

Accreditations:

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**Total Metals (TMTL)**

Total Metals

CLP Inorganics (Soil)



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**Report Narrative for Work Order: C153901**

Inorganic Data Review and Validation Report

Site Name: 35TH Avenue Site, Birmingham, AL

Case No.: 45580, Project No.: 15-0405, Work Order Nos.: C153901, C153903

ELEMENT Sample IDs.: C153901-01 – 15, C153903-01, 02

Sampling Date(s): 9/8 - 9/15

Validated Time of Sample Receipt: 9/11/15

Laboratory Performing Inorganic Analyses: ALS Laboratory Group, Salt Lake City, UT

Date Received from Lab: 9/25/15

Analyses conducted: Total Metals

The ESAT Work Team has reviewed the above-captioned CLP data package consisting of 17 soil samples for total metals by ICP-AES analyses according to the contract Statement of Work ISM02.2 and EPA guidelines. This package presents acceptable contractual and technical performance with qualifications. Additional details are provided below.

Examination of laboratory blank samples revealed no contamination that required reporting limit adjustment.

**ICP-AES Analysis**

**PE Sample Results**

The performance evaluation sample recoveries for metals in soil by ICP-AES were scored as within limits by the web-based SPS Web software. Therefore, no qualifiers were applied on the basis of these criteria.

**Other QA/QC Results**

Matrix spike recovery was below control limits for arsenic in sample C153901-14. The result was 29% recovery and the post-digestion spike recovery was 82%. The arsenic result for sample C153901-14 was considered estimated and "J" qualified.

A Stage 4 validation consisting of manual review was performed on the inorganic samples submitted for this case.

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cc: Nardina Turner



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**SAMPLES INCLUDED IN THIS REPORT**

**Project: 15-0405, 35th Avenue Site**

**Contract Lab Case: 45580**

Sample ID	Laboratory ID	MD#	D#	Matrix	Date Collected
CV0396A-CS-0-4	C153901-01	9EW5	9EW5	Surface Soil	9/9/15 14:20
CV0396A-CSD-0-4	C153901-02	9EW6	9EW6	Surface Soil	9/9/15 14:25
CV0396B-CS-0-4	C153901-03	9EW7	9EW7	Surface Soil	9/9/15 14:30
CV0512A-CS-0-4	C153901-04	9EW8	9EW8	Surface Soil	9/9/15 15:10
CV0512B-CS-0-4	C153901-05	9EW9	9EW9	Surface Soil	9/9/15 15:15
CV0512C-CS-0-4	C153901-06	9EX0	9EX0	Surface Soil	9/9/15 15:20
CV0778A-CS-0-4	C153901-07	9EX1	9EX1	Surface Soil	9/8/15 11:05
CV0778A-CSD-0-4	C153901-08	9EX2	9EX2	Surface Soil	9/8/15 11:10
CV1212A-CS-0-4	C153901-09	9EX3	9EX3	Surface Soil	9/8/15 14:00
CV1212B-CS-0-4	C153901-10	9EX4	9EX4	Surface Soil	9/8/15 14:10
CV1218A-CS-0-4	C153901-11	9EX5	9EX5	Surface Soil	9/9/15 10:15
CV1218B-CS-0-4	C153901-12	9EX6	9EX6	Surface Soil	9/9/15 10:20
CV1218C-CS-0-4	C153901-13	9EX7	9EX7	Surface Soil	9/9/15 10:25
CV1331A-CS-0-4	C153901-14	9EX8	9EX8	Surface Soil	9/8/15 12:40
CV1331B-CS-0-4	C153901-15	9EX9	9EX9	Surface Soil	9/8/15 12:50



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### DATA QUALIFIER DEFINITIONS

CLP36	Identification/Concentration of analyte not confirmed by ICP-MS.
J	The identification of the analyte is acceptable; the reported value is an estimate.
OM-1	Matrix Spike Recovery less than method control limits

### ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service  Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System ( <a href="http://www.epa.gov/srs">www.epa.gov/srs</a> ), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV0396A-CS-0-4

Lab ID: C153901-01

MD No: 9EW5 ALS

Station ID: CV0396A

Matrix: Surface Soil

D No: 9EW5 ALS

Date Collected: 9/9/15 14:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	89		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	24	CLP36	mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	70		mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV0396A-CSD-0-4

Lab ID: C153901-02

MD No: 9EW6 ALS

Station ID: CV0396A

Matrix: Surface Soil

D No: 9EW6 ALS

Date Collected: 9/9/15 14:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	88		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	22	CLP36	mg/kg dry	0.81	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	68		mg/kg dry	0.81	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV0396B-CS-0-4

Lab ID: C153901-03

MD No: 9EW7 ALS

Station ID: CV0396B

Matrix: Surface Soil

D No: 9EW7 ALS

Date Collected: 9/9/15 14:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	87		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	17	CLP36	mg/kg dry	0.93	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	110		mg/kg dry	0.93	9/16/15	9/23/15	CLP ISM02.2 P





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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV0512A-CS-0-4

Lab ID: C153901-04

MD No: 9EW8 ALS

Station ID: CV0512A

Matrix: Surface Soil

D No: 9EW8 ALS

Date Collected: 9/9/15 15:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1642941	% Solids	88		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	21	CLP36	mg/kg dry	0.87	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	230		mg/kg dry	0.87	9/16/15	9/23/15	CLP ISM02.2 P





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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV0512B-CS-0-4

Lab ID: C153901-05

MD No: 9EW9 ALS

Station ID: CV0512B

Matrix: Surface Soil

D No: 9EW9 ALS

Date Collected: 9/9/15 15:15

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1642941	% Solids	88		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	14	CLP36	mg/kg dry	0.95	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	120		mg/kg dry	0.95	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV0512C-CS-0-4

Lab ID: C153901-06

MD No: 9EX0 ALS

Station ID: CV0512C

Matrix: Surface Soil

D No: 9EX0 ALS

Date Collected: 9/9/15 15:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	87		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	16	CLP36	mg/kg dry	0.86	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	200		mg/kg dry	0.86	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV0778A-CS-0-4

Lab ID: C153901-07

MD No: 9EX1 ALS

Station ID: CV0778A

Matrix: Surface Soil

D No: 9EX1 ALS

Date Collected: 9/8/15 11:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	85		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	23	CLP36	mg/kg dry	1.0	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	370		mg/kg dry	1.0	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

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Contract Lab Case: 45580

Sample ID: CV0778A-CSD-0-4

Lab ID: C153901-08

MD No: 9EX2 ALS

Station ID: CV0778A

Matrix: Surface Soil

D No: 9EX2 ALS

Date Collected: 9/8/15 11:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	85		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	26	CLP36	mg/kg dry	1.0	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	380		mg/kg dry	1.0	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV1212A-CS-0-4

Lab ID: C153901-09

MD No: 9EX3 ALS

Station ID: CV1212A

Matrix: Surface Soil

D No: 9EX3 ALS

Date Collected: 9/8/15 14:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1642941	% Solids	87		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	27	CLP36	mg/kg dry	0.95	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	170		mg/kg dry	0.95	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

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Contract Lab Case: 45580

Sample ID: CV1212B-CS-0-4

Lab ID: C153901-10

MD No: 9EX4 ALS

Station ID: CV1212B

Matrix: Surface Soil

D No: 9EX4 ALS

Date Collected: 9/8/15 14:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1642941	% Solids	88		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	26	CLP36	mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	180		mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV1218A-CS-0-4

Lab ID: C153901-11

MD No: 9EX5 ALS

Station ID: CV1218A

Matrix: Surface Soil

D No: 9EX5 ALS

Date Collected: 9/9/15 10:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	85		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	18	CLP36	mg/kg dry	0.97	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	520		mg/kg dry	0.97	9/16/15	9/23/15	CLP ISM02.2 P





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## Total Metals

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Contract Lab Case: 45580

Sample ID: CV1218B-CS-0-4

Lab ID: C153901-12

MD No: 9EX6 ALS

Station ID: CV1218B

Matrix: Surface Soil

D No: 9EX6 ALS

Date Collected: 9/9/15 10:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	87		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	31	CLP36	mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	1600		mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

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Contract Lab Case: 45580

Sample ID: CV1218C-CS-0-4

Lab ID: C153901-13

MD No: 9EX7 ALS

Station ID: CV1218C

Matrix: Surface Soil

D No: 9EX7 ALS

Date Collected: 9/9/15 10:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	84		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	36	CLP36	mg/kg dry	1.0	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	2400		mg/kg dry	1.0	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV1331A-CS-0-4

Lab ID: C153901-14

MD No: 9EX8 ALS

Station ID: CV1331A

Matrix: Surface Soil

D No: 9EX8 ALS

Date Collected: 9/8/15 12:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	85		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	29	J, CLP36, QM-1	mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	140		mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P



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## Total Metals

Project: 15-0405, 35th Avenue Site

Contract Lab Case: 45580

Sample ID: CV1331B-CS-0-4

Lab ID: C153901-15

MD No: 9EX9 ALS

Station ID: CV1331B

Matrix: Surface Soil

D No: 9EX9 ALS

Date Collected: 9/8/15 12:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	87		%		9/16/15	9/23/15	CLP Inorganics
7440-38-2	Arsenic	24	CLP36	mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P
7439-92-1	Lead	960		mg/kg dry	1.1	9/16/15	9/23/15	CLP ISM02.2 P